



HALEY & ALDRICH, INC.
1956 Webster St
Suite 300
Oakland, CA 94612
510.879.4544

30 September 2019
File No. 130072-022

United States Environmental Protection Agency, Region IX
75 Hawthorne Street (SFD-7-3)
San Francisco, California 94105

Attention: Ms. Karen Jurist, Project Manager
California Site Cleanup Section 3

Subject: July 2019 Progress Report
Cooper Drum Company Superfund Site
South Gate, California

Dear Ms. Jurist:

On behalf of the Cooper Drum Cooperating Parties Group (CDCPG), Haley & Aldrich, Inc. prepared this progress report to summarize project work performed at the Cooper Drum Company Superfund Site (Site) during the July 2019 reporting period. This progress report also provides an update on planned work for the two months following the reporting period. This report is being submitted pursuant to Section M of Appendix C of the Consent Decree entered by the United States District Court Central District of California, Western Division, Case 2:15-cv-09931 on 20 April 2016.

Project Work Performed in July 2019

PROJECT MANAGEMENT, COMMUNICATION, AND REPORTS

- The Aerobic Co-Metabolic Biodegradation Pilot Test Work Plan Addendum was submitted to the EPA on 12 July 2019;
- May 2019 Progress Report was submitted to the Environmental Protection Agency (EPA) on 31 July 2019;
- Project communication and management tasks regarding scheduling, staffing, operation, maintenance, and monitoring (OMM) were completed.

CONSTRUCTION-RELATED TASKS

Aerobic Co-metabolic (ACM) Biodegradation Pilot Test construction-related tasks completed during this reporting period were documented in Construction Progress Reports that were submitted to the EPA on

7 and 14 August 2019. The following major construction-related tasks were completed during the reporting period:

- Installation and development of the three ACM Pilot Test groundwater wells (PTW-1, PTW-2 and PMW-1).

OPERATION AND MAINTENANCE

Activities

OMM inspections were performed on a biweekly basis in July 2019. During this reporting period, the following activities were completed:

- The Operable Unit 1 (OU1) groundwater extraction system recovered approximately 421,346 gallons of groundwater during this reporting period. The total volume was calculated from the reported totalizer readings that were measured at the effluent discharge point. The groundwater system had an average flow rate of approximately 9.4 gallons per minute (gpm) and operated continuously during the reporting period.
- The soil vapor extraction (SVE) system was inactive during the reporting period because of scheduled cyclical operation off-cycles.

Sample Collection and Analysis

- Water samples were collected from the groundwater extraction treatment system on 24 July 2019. Samples were submitted to American Analytics and analyzed for VOCs using EPA Method 8260B and 1,4-dioxane using EPA Method 8270M-isotope dilution. The analytical results for these samples are summarized in Table I; the laboratory report is included in Attachment A.

Remediation Progress

A summary of the mass removal by the SVE/DPE and groundwater treatment systems and the volume of groundwater treated during this reporting period are provided below:

- Approximately 0.21 pounds of chemicals of concern (COC) were removed by the groundwater extraction system during the reporting period;
- Approximately 25.7 pounds of COC have been removed by the groundwater extraction system since July 2012;
- No perched (OU2) groundwater was extracted during the reporting period. According to perched groundwater gauging results, the perched zone has been dry since 2015;
- Cumulative volumes of extracted perched (OU2) and OU1 groundwater were approximately 1,117,865 gallons and 37,135,554 gallons, respectively (Figure 1);
- Since the SVE system was inactive in July, no COC were removed by the SVE system during the reporting period; and

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- The cumulative COC and VOC mass removal by the SVE system from the previous reporting period were approximately 583 and 801 pounds, respectively. This information is shown graphically in Figure 2.

OTHER FIELD-RELATED TASKS

- Temporarily removed and capped dual phase extraction and soil vapor extraction conveyance lines to allow the drill rig access to install the pilot test wells.

Project Work Performed or Planned in August and September 2019

Project tasks performed or planned for August and September 2019 are listed below:

- SVE to remain inactive for the installation of the ACM Biodegradation pilot system and conveyance lines.
- Continue OU1 groundwater extraction from wells EW-4, EW-5, EW-7A/B, and EW-A; in August terminate extraction at EW-2 at the start of the ACM Biodegradation Pilot Test;
- Collect water samples from the groundwater treatment system on a monthly basis for performance evaluation; and
- Conduct aquifer testing and install the pilot system and conveyance lines for implementation of the ACM Biodegradation Pilot Test Work Plan.

Please call Mr. Peter Bennett at (510) 879-4547 or Mr. John Lang at (513) 325-2732 if you have any questions regarding this progress report.

Sincerely yours,
HALEY & ALDRICH, INC.



Christopher J. Tsatsios, PE
Associate Engineer



P. D.
Peter Bennett, CHG
Principal Hydrogeologist

Attachments:

- Table I – Groundwater Treatment System Analytical Results
- Figure 1 – Cumulative Volume of Groundwater Extracted from OU1 and OU2
- Figure 2 – Cumulative COC and VOC Mass Removal by SVE System
- Attachment A – Groundwater Treatment System Laboratory Analytical Report

United States Environmental Protection Agency, Region IX

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c: California Department of Toxic Substances Control; Attn: Ms. Lori Parnass
Cooper Drum Cooperating Parties Group; Attn: Mr. Kyle Christie
Cooper Drum Cooperating Parties Group; Attn: Mr. John Lang
Cooper Drum Cooperating Parties Group; Attn: Ms. Beth Hesse
Gilbane, Inc.; Attn: Mr. Don Gruber
Los Angeles Unified School District; Attn: Mr. Anthony Espinoza
Los Angeles Unified School District; Attn: Mr. Steven Morrill
United States Environmental Protection Agency Region 9; Attn: Ms. Tessa Berman
City of South Gate Public Works Department, Attn: Mr. Chris Castillo
City of South Gate Public Works Department, Attn: Mr. Victor Chavez
City of South Gate Public Works Department, Attn: Mr. Jose Loera
City of South Gate Public Works Department, Attn: Ms. Gladis Deras
City of South Gate Community Development Department, Attn: Mr. Joe Perez

G:\38945 Cooper Drum\002 - Regulatory Interaction\Monthly Report\2019\2019-07\2019_0930_HAI_July2019_Progress_Rpt_F.docx

TABLE

TABLE I
GROUNDWATER TREATMENT SYSTEM ANALYTICAL RESULTS
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA

Analyte	Groundwater Concentrations ($\mu\text{g/L}$)		
	OU1 Groundwater Extraction Wells Influent	OU2 Dual Phase Extraction Wells Influent	OU1 & OU2 Combined Flow Effluent
	7/24/2019	NM	7/24/2019
LACSD TOTAL VOC EFFLUENT DISCHARGE LIMIT	-	-	1,000
CALCULATED TOTAL VOC EFFLUENT DISCHARGE	-	-	59
Benzene	1.7	NM	1.5
Bromodichloromethane	ND<0.20	NM	ND<0.20
Bromoform	ND<0.50	NM	ND<0.50
Bromomethane	ND<0.50	NM	ND<0.50
Carbon Tetrachloride	ND<0.30	NM	ND<0.30
Chlorobenzene	ND<0.30	NM	ND<0.30
Chloroethane	ND<0.50	NM	ND<0.50
Chloroform	ND<0.30	NM	ND<0.30
Chloromethane	ND<0.40	NM	ND<0.40
Dibromochloromethane	ND<0.30	NM	ND<0.30
1,2-Dichlorobenzene	ND<0.30	NM	ND<0.30
1,3-Dichlorobenzene	ND<0.10	NM	ND<0.10
1,4-Dichlorobenzene	ND<0.30	NM	ND<0.30
1,1-Dichloroethane	2.1	NM	1.8
1,2-Dichloroethane	2.1	NM	1.8
1,1-Dichloroethene	0.95	NM	0.87
cis-1,2-Dichloroethene	40	NM	38
trans-1,2-Dichloroethene	5.3	NM	5.0
1,2-Dichloropropane	ND<0.50	NM	ND<0.50
cis-1,3-Dichloropropene	ND<0.20	NM	ND<0.20
trans-1,3-Dichloropropene	ND<0.20	NM	ND<0.20
Ethylbenzene	ND<0.20	NM	ND<0.20
Methylene Chloride	ND<5.0	NM	ND<5.0
1,1,2,2-Tetrachloroethane	ND<0.30	NM	ND<0.30
Tetrachloroethene (PCE)	ND<0.50	NM	ND<0.50
Toluene	ND<0.30	NM	ND<0.30
1,1,1-Trichloroethane	ND<0.30	NM	ND<0.30
Trichloroethene (TCE)	1.6	NM	1.6
1,2,3-Trichloropropane	ND<0.30	NM	ND<0.30
Vinyl Chloride	0.97	NM	0.75
1,4-Dioxane	7.3	NM	7.4

Notes:

Samples were submitted to American Analytics and analyzed for VOCs using EPA Method 8260B

and 1,4-dioxane using EPA Method 8270M-isotope dilution

LACSD = Los Angeles County Sanitation District

VOC = Volatile Organic Compound

ND = Not detected at a concentration equal to or greater than indicated reporting limit

OU1 = Operable Unit 1

OU2 = Operable Unit 2

J = The detected concentration is below the reporting limit and is estimated.

$\mu\text{g/L}$ = micrograms per liter

NM = Not Measured due to OU-2 being dewatered

FIGURES

FIGURE 1

CUMULATIVE VOLUME OF GROUNDWATER EXTRACTED FROM OU1 AND OU2
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA

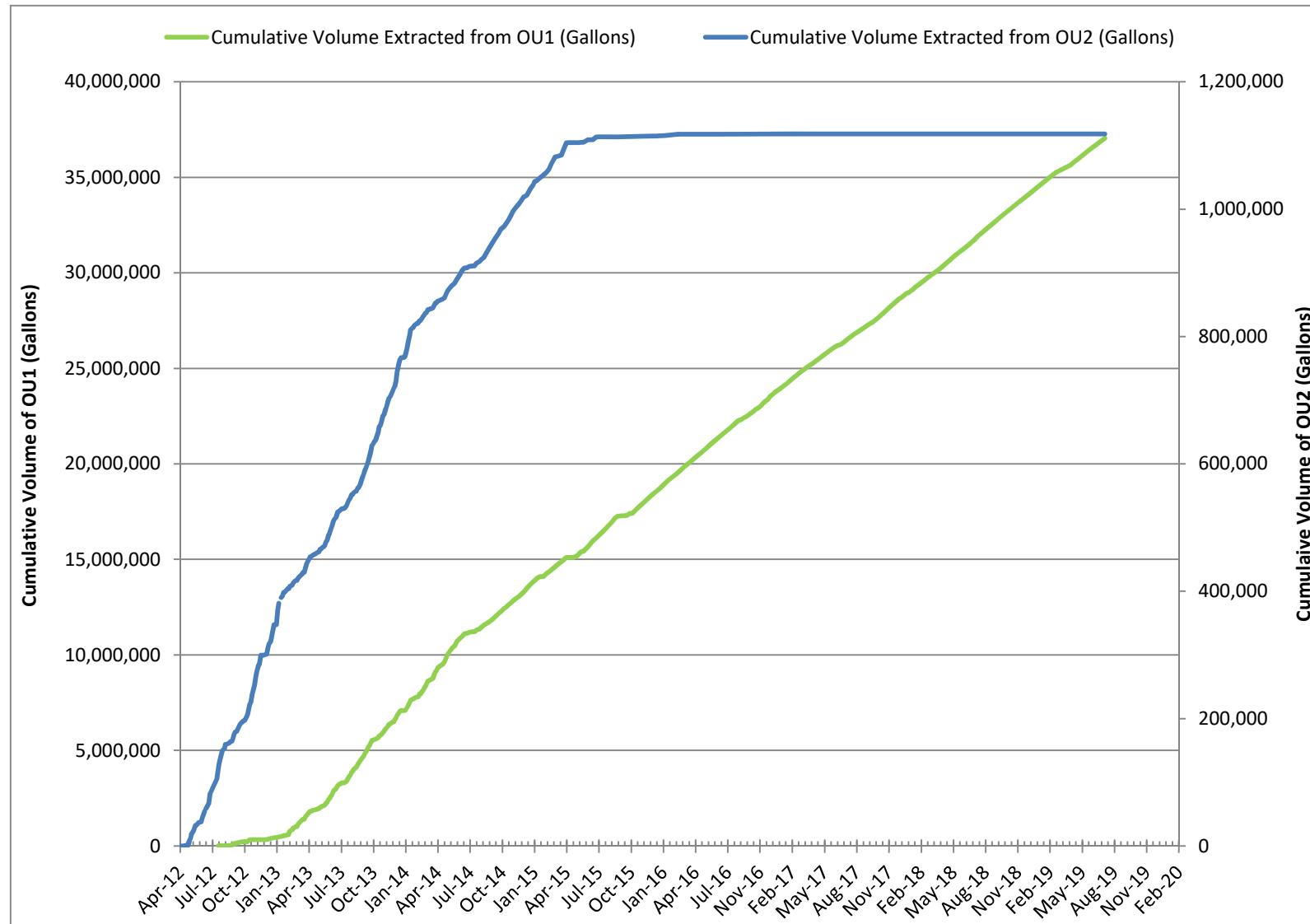
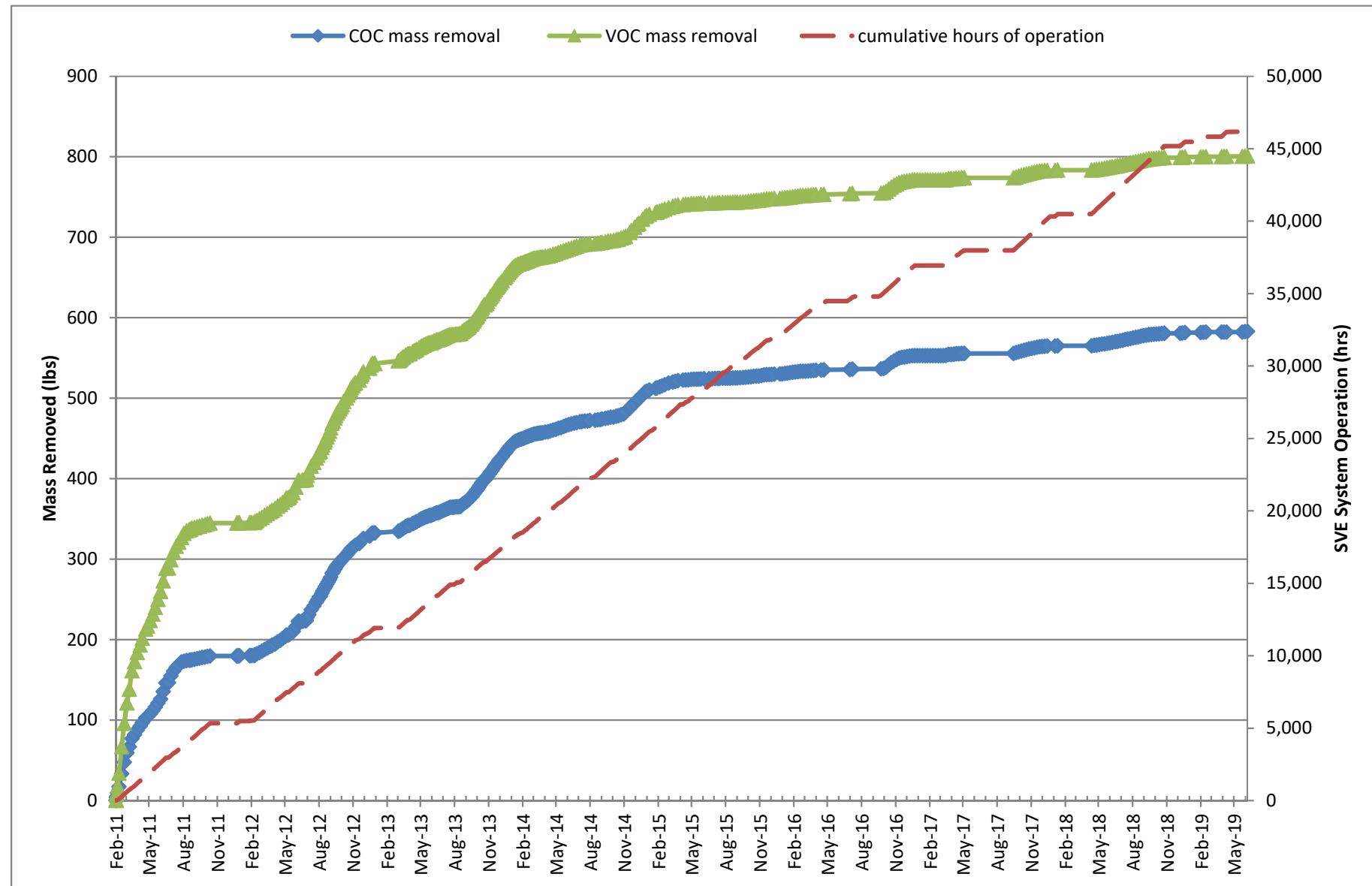


FIGURE 2

CUMULATIVE COC AND VOC MASS REMOVAL BY SVE SYSTEM
COOPER DRUM COMPANY SUPERFUND SITE
SOUTH GATE, CALIFORNIA



ATTACHMENT A

Groundwater Treatment System Laboratory Analytical Report



9765 Eton Avenue
Chatsworth
California 91311
Tel: (818) 998-5547
Fax: (818) 998-7258

August 06, 2019

Peter Bennett
Haley & Aldrich (Oakland)
1956 Webster St., Suite 450
Oakland, CA 94612

Re : Cooper Drum - South Gate / 130072-024
A874364 / 9G24009

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 07/24/19 14:10 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report or require additional information please call me at American Analytics.

Sincerely,

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
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8260B

EW-INF-0724019-0001	9G24009-01	Water	5	07/24/19 10:35	07/24/19 14:10
TOTAL-EFF-0724019-0001	9G24009-02	Water	5	07/24/19 10:15	07/24/19 14:10

8270CM 1,4-Dioxane Only

EW-INF-0724019-0001	9G24009-01	Water	5	07/24/19 10:35	07/24/19 14:10
TOTAL-EFF-0724019-0001	9G24009-02	Water	5	07/24/19 10:15	07/24/19 14:10

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: EPA 8270CM 1,4-Dioxane

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

AA I.D. No.	Client I.D. No.	Sampled	Prepared	Analyzed	Dilution	Result	Units	MDL	MRL
<u>8270CM 1,4-Dioxane Only (EPA 8270CM)</u>									
9G24009-01	EW-INF-0724019-001	07/24/19	07/30/19	07/31/19	1	7.3	ug/L	1	2
9G24009-02	TOTAL-EFF-0724019-0001	07/24/19	07/30/19	07/31/19	1	7.4	ug/L	1	2

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19
Units: ug/L

Date Sampled:	07/24/19	07/24/19		
Date Prepared:	07/29/19	07/29/19		
Date Analyzed:	07/29/19	07/29/19		
AA ID No:	9G24009-01	9G24009-02		
Client ID No:	EW-INF-0724019	TOTAL-EFF-07240		
	-0001	19-0001		
Matrix:	Water	Water		
Dilution Factor:	1	1	MDL	MRL

8260B (EPA 8260B)

Acetone	<7.7	<7.7	7.7	50
Benzene	1.7	1.5	0.40	0.50
Bromobenzene	<0.40	<0.40	0.40	0.50
Bromochloromethane	<0.20	<0.20	0.20	0.50
Bromodichloromethane	<0.40	<0.40	0.40	0.50
Bromoform	<0.40	<0.40	0.40	0.50
Bromomethane	<0.30	<0.30	0.30	0.50
2-Butanone (MEK)	<8.6	<8.6	8.6	20
tert-Butylbenzene	<0.20	<0.20	0.20	0.50
n-Butylbenzene	<0.20	<0.20	0.20	0.50
sec-Butylbenzene	<0.20	<0.20	0.20	0.50
Carbon Disulfide	<0.20	<0.20	0.20	0.50
Carbon Tetrachloride	<0.30	<0.30	0.30	0.50
Chlorobenzene	<0.40	<0.40	0.40	0.50
Chloroethane	<0.40	<0.40	0.40	0.50
Chloroform	<0.30	<0.30	0.30	0.50
Chloromethane	<0.40	<0.40	0.40	0.50
4-Chlorotoluene	<0.20	<0.20	0.20	0.50
2-Chlorotoluene	<0.20	<0.20	0.20	0.50
1,2-Dibromo-3-chloropropane	<0.40	<0.40	0.40	1.0
Dibromochloromethane	<0.40	<0.40	0.40	0.50
1,2-Dibromoethane (EDB)	<0.40	<0.40	0.40	0.50
Dibromomethane	<0.40	<0.40	0.40	0.50
1,3-Dichlorobenzene	<0.40	<0.40	0.40	0.50
1,4-Dichlorobenzene	<0.30	<0.30	0.30	0.50
1,2-Dichlorobenzene	<0.30	<0.30	0.30	0.50

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19
Units: ug/L

Date Sampled:	07/24/19	07/24/19		
Date Prepared:	07/29/19	07/29/19		
Date Analyzed:	07/29/19	07/29/19		
AA ID No:	9G24009-01	9G24009-02		
Client ID No:	EW-INF-0724019	TOTAL-EFF-07240		
	-0001	19-0001		
Matrix:	Water	Water		
Dilution Factor:	1	1	MDL	MRL

8260B (EPA 8260B) (continued)

Dichlorodifluoromethane (R12)	<0.40	<0.40	0.40	0.50
1,1-Dichloroethane	2.1	1.8	0.20	0.50
1,2-Dichloroethane (EDC)	2.1	1.8	0.20	0.50
cis-1,2-Dichloroethylene	40	38	0.30	0.50
1,1-Dichloroethylene	0.95	0.87	0.40	0.50
trans-1,2-Dichloroethylene	5.3	5.0	0.30	0.50
1,3-Dichloropropane	<0.40	<0.40	0.40	0.50
1,2-Dichloropropane	<0.30	<0.30	0.30	0.50
2,2-Dichloropropane	<0.30	<0.30	0.30	0.50
trans-1,3-Dichloropropylene	<0.30	<0.30	0.30	0.50
1,1-Dichloropropylene	<0.30	<0.30	0.30	0.50
cis-1,3-Dichloropropylene	<0.40	<0.40	0.40	0.50
Ethylbenzene	<0.30	<0.30	0.30	0.50
Hexachlorobutadiene	<0.50	<0.50	0.50	1.0
2-Hexanone (MBK)	<8.4	<8.4	8.4	20
Isopropylbenzene	<0.30	<0.30	0.30	0.50
4-Isopropyltoluene	<0.30	<0.30	0.30	1.0
Methyl-tert-Butyl Ether (MTBE)	<1.4	<1.4	1.4	2.0
Methylene Chloride	<4.4	<4.4	4.4	5.0
4-Methyl-2-pentanone (MIBK)	<9.8	<9.8	9.8	20
Naphthalene	<0.40	<0.40	0.40	2.0
n-Propylbenzene	<0.20	<0.20	0.20	0.50
Styrene	<0.20	<0.20	0.20	0.50
1,1,1,2-Tetrachloroethane	<0.30	<0.30	0.30	0.50
1,1,2,2-Tetrachloroethane	<0.40	<0.40	0.40	0.50
Tetrachloroethylene (PCE)	<0.50	<0.50	0.50	0.50

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate
Method: VOCs by GC/MS

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19
Units: ug/L

Date Sampled:	07/24/19	07/24/19		
Date Prepared:	07/29/19	07/29/19		
Date Analyzed:	07/29/19	07/29/19		
AA ID No:	9G24009-01	9G24009-02		
Client ID No:	EW-INF-0724019	TOTAL-EFF-07240		
	-0001	19-0001		
Matrix:	Water	Water		
Dilution Factor:	1	1	MDL	MRL

8260B (EPA 8260B) (continued)

Toluene	<0.20	<0.20	0.20	0.50
1,2,4-Trichlorobenzene	<0.30	<0.30	0.30	0.50
1,2,3-Trichlorobenzene	<0.50	<0.50	0.50	0.50
1,1,2-Trichloroethane	<0.30	<0.30	0.30	0.50
1,1,1-Trichloroethane	<0.30	<0.30	0.30	0.50
Trichloroethylene (TCE)	1.6	1.6	0.30	0.50
Trichlorofluoromethane (R11)	<0.40	<0.40	0.40	0.50
1,2,3-Trichloropropane	<0.20	<0.20	0.20	0.50
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.30	<0.30	0.30	0.50
1,2,4-Trimethylbenzene	<0.30	<0.30	0.30	0.50
1,3,5-Trimethylbenzene	<0.20	<0.20	0.20	0.50
Vinyl chloride	0.97	0.75	0.40	0.50
o-Xylene	<0.30	<0.30	0.30	0.50
m,p-Xylenes	<0.60	<0.60	0.60	1.0

Surrogates			%REC Limits
4-Bromofluorobenzene	99%	99%	80-129
Dibromofluoromethane	105%	99%	68-137
Toluene-d8	96%	96%	83-134

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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EPA 8270CM 1,4-Dioxane - Quality Control

Batch B9G3009 - EPA 3510C_MS

Blank (B9G3009-BLK1)	Prepared: 07/30/19 Analyzed: 07/31/19							
1,4-Dioxane	<1.0	1.0	ug/L					
LCS (B9G3009-BS1)	Prepared: 07/30/19 Analyzed: 07/31/19							
1,4-Dioxane	9.30	1.0	ug/L	10	93.0	75-125		
LCS Dup (B9G3009-BSD1)	Prepared: 07/30/19 Analyzed: 07/31/19							
1,4-Dioxane	9.60	1.0	ug/L	10	96.0	75-125	3.17	30

VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Blank (B9G2914-BLK1)	Prepared & Analyzed: 07/29/19			
Acetone	<7.7	7.7	ug/L	
Benzene	<0.40	0.40	ug/L	
Bromobenzene	<0.40	0.40	ug/L	
Bromoform	<0.20	0.20	ug/L	
Bromochloromethane	<0.40	0.40	ug/L	
Bromodichloromethane	<0.40	0.40	ug/L	
Bromomethane	<0.40	0.40	ug/L	
2-Butanone (MEK)	<8.6	8.6	ug/L	
tert-Butylbenzene	<8.6	8.6	ug/L	
n-Butylbenzene	<0.20	0.20	ug/L	
sec-Butylbenzene	<0.20	0.20	ug/L	
Carbon Disulfide	<0.20	0.20	ug/L	
Carbon Tetrachloride	<0.20	0.20	ug/L	
Chlorobenzene	<0.20	0.20	ug/L	
Chloroethane	<0.20	0.20	ug/L	
Chloroform	<0.20	0.20	ug/L	
Chloromethane	<0.20	0.20	ug/L	
4-Chlorotoluene	<0.20	0.20	ug/L	
2-Chlorotoluene	<0.20	0.20	ug/L	
1,2-Dibromo-3-chloropropane	<0.20	0.20	ug/L	
Dibromochloromethane	<0.20	0.20	ug/L	
1,2-Dibromoethane (EDB)	<0.20	0.20	ug/L	
Dibromomethane	<0.20	0.20	ug/L	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Blank (B9G2914-BLK1) Continued

Prepared & Analyzed: 07/29/19

1,3-Dichlorobenzene	<0.40	0.40	ug/L
1,4-Dichlorobenzene	<0.30	0.30	ug/L
1,2-Dichlorobenzene	<0.30	0.30	ug/L
Dichlorodifluoromethane (R12)	<0.40	0.40	ug/L
1,1-Dichloroethane	<0.20	0.20	ug/L
1,2-Dichloroethane (EDC)	<0.20	0.20	ug/L
cis-1,2-Dichloroethylene	<0.30	0.30	ug/L
1,1-Dichloroethylene	<0.40	0.40	ug/L
trans-1,2-Dichloroethylene	<0.30	0.30	ug/L
1,3-Dichloropropane	<0.40	0.40	ug/L
1,2-Dichloropropane	<0.30	0.30	ug/L
2,2-Dichloropropane	<0.30	0.30	ug/L
trans-1,3-Dichloropropylene	<0.30	0.30	ug/L
1,1-Dichloropropylene	<0.30	0.30	ug/L
cis-1,3-Dichloropropylene	<0.40	0.40	ug/L
Ethylbenzene	<0.30	0.30	ug/L
Hexachlorobutadiene	<0.50	0.50	ug/L
2-Hexanone (MBK)	<8.4	8.4	ug/L
Isopropylbenzene	<0.30	0.30	ug/L
4-Isopropyltoluene	<0.30	0.30	ug/L
Methyl-tert-Butyl Ether (MTBE)	<1.4	1.4	ug/L
Methylene Chloride	<4.4	4.4	ug/L
4-Methyl-2-pentanone (MIBK)	<9.8	9.8	ug/L
Naphthalene	<0.40	0.40	ug/L
n-Propylbenzene	<0.20	0.20	ug/L
Styrene	<0.20	0.20	ug/L
1,1,1,2-Tetrachloroethane	<0.30	0.30	ug/L
1,1,2,2-Tetrachloroethane	<0.40	0.40	ug/L
Tetrachloroethylene (PCE)	<0.50	0.50	ug/L
Toluene	<0.20	0.20	ug/L
1,2,4-Trichlorobenzene	<0.30	0.30	ug/L
1,2,3-Trichlorobenzene	<0.50	0.50	ug/L

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	RPD Limit	Notes
VOCs by GC/MS - Quality Control										
<i>Batch B9G2914 - EPA 5030B</i>										
Blank (B9G2914-BLK1) Continued Prepared & Analyzed: 07/29/19										
1,1,2-Trichloroethane	<0.30	0.30	ug/L							
1,1,1-Trichloroethane	<0.30	0.30	ug/L							
Trichloroethylene (TCE)	<0.30	0.30	ug/L							
Trichlorofluoromethane (R11)	<0.40	0.40	ug/L							
1,2,3-Trichloropropane	<0.20	0.20	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.30	0.30	ug/L							
1,2,4-Trimethylbenzene	<0.30	0.30	ug/L							
1,3,5-Trimethylbenzene	<0.20	0.20	ug/L							
Vinyl chloride	<0.40	0.40	ug/L							
o-Xylene	<0.30	0.30	ug/L							
m,p-Xylenes	<0.60	0.60	ug/L							
Surrogate: 4-Bromofluorobenzene	45.6		ug/L	50		91.3	80-129			
Surrogate: Dibromofluoromethane	47.5		ug/L	50		95.1	68-137			
Surrogate: Toluene-d8	45.9		ug/L	50		91.9	83-134			
LCS (B9G2914-BS1) Prepared & Analyzed: 07/29/19										
Acetone	22.7	7.7	ug/L	20		113	27-123			J
Benzene	22.4	0.40	ug/L	20		112	60-134			
Bromobenzene	19.6	0.40	ug/L	20		98.0	70-130			
Bromoform	19.3	0.20	ug/L	20		96.5	78-121			
Bromochloromethane	21.6	0.40	ug/L	20		108	74-135			
Bromodichloromethane	16.9	0.40	ug/L	20		84.6	68-132			
Bromomethane	17.4	0.30	ug/L	20		86.8	58-142			
2-Butanone (MEK)	17.8	8.6	ug/L	20		89.0	62-138			J
tert-Butylbenzene	21.3	0.20	ug/L	20		106	70-130			
n-Butylbenzene	22.0	0.20	ug/L	20		110	70-130			
sec-Butylbenzene	21.3	0.20	ug/L	20		107	84-142			
Carbon Disulfide	21.3	0.20	ug/L	20		106	17-177			
Carbon Tetrachloride	20.6	0.30	ug/L	20		103	66-155			
Chlorobenzene	18.4	0.40	ug/L	20		92.2	70-130			
Chloroethane	20.2	0.40	ug/L	20		101	45-166			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

LCS (B9G2914-BS1) Continued

Prepared & Analyzed: 07/29/19

Chloroform	19.4	0.30	ug/L	20	97.0	71-131
Chloromethane	17.4	0.40	ug/L	20	86.8	48-152
4-Chlorotoluene	21.3	0.20	ug/L	20	106	70-130
2-Chlorotoluene	21.2	0.20	ug/L	20	106	70-130
1,2-Dibromo-3-chloropropane	20.9	0.40	ug/L	20	104	53-145
Dibromochloromethane	17.7	0.40	ug/L	20	88.6	72-133
1,2-Dibromoethane (EDB)	18.6	0.40	ug/L	20	92.9	79-120
Dibromomethane	19.2	0.40	ug/L	20	96.2	68-124
1,3-Dichlorobenzene	19.9	0.40	ug/L	20	99.6	70-130
1,4-Dichlorobenzene	19.7	0.30	ug/L	20	98.4	70-130
1,2-Dichlorobenzene	20.4	0.30	ug/L	20	102	70-130
Dichlorodifluoromethane (R12)	15.1	0.40	ug/L	20	75.4	16-148
1,1-Dichloroethane	19.0	0.20	ug/L	20	95.1	67-120
1,2-Dichloroethane (EDC)	17.4	0.20	ug/L	20	86.8	57-156
cis-1,2-Dichloroethylene	21.4	0.30	ug/L	20	107	70-124
1,1-Dichloroethylene	20.5	0.40	ug/L	20	102	50-149
trans-1,2-Dichloroethylene	20.8	0.30	ug/L	20	104	66-126
1,3-Dichloropropane	18.8	0.40	ug/L	20	94.2	79-113
1,2-Dichloropropane	24.4	0.30	ug/L	20	122	53-139
2,2-Dichloropropane	18.8	0.30	ug/L	20	94.2	44-162
trans-1,3-Dichloropropylene	18.8	0.30	ug/L	20	93.8	76-121
1,1-Dichloropropylene	22.1	0.30	ug/L	20	111	84-124
cis-1,3-Dichloropropylene	22.7	0.40	ug/L	20	114	67-127
Ethylbenzene	18.8	0.30	ug/L	20	93.9	86-124
Hexachlorobutadiene	20.0	0.50	ug/L	20	99.8	76-140
2-Hexanone (MBK)	21.0	8.4	ug/L	20	105	52-123
Isopropylbenzene	21.3	0.30	ug/L	20	107	70-130
4-Isopropyltoluene	21.1	0.30	ug/L	20	105	70-130
Methyl-tert-Butyl Ether (MTBE)	42.0	1.4	ug/L	40	105	58-144
Methylene Chloride	22.1	4.4	ug/L	20	110	50-135
4-Methyl-2-pentanone (MIBK)	21.2	9.8	ug/L	20	106	49-139
Naphthalene	21.0	0.40	ug/L	20	105	74-128

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	RPD Limit	Notes
VOCs by GC/MS - Quality Control										
<i>Batch B9G2914 - EPA 5030B</i>										
LCS (B9G2914-BS1) Continued										
n-Propylbenzene	22.0	0.20	ug/L	20		110	70-130			
Styrene	19.6	0.20	ug/L	20		98.1	84-123			
1,1,1,2-Tetrachloroethane	17.5	0.30	ug/L	20		87.6	70-130			
1,1,2,2-Tetrachloroethane	18.8	0.40	ug/L	20		94.0	58-126			
Tetrachloroethylene (PCE)	16.5	0.50	ug/L	20		82.3	70-130			
Toluene	19.2	0.20	ug/L	20		95.9	83-118			
1,2,4-Trichlorobenzene	20.3	0.30	ug/L	20		101	84-128			
1,2,3-Trichlorobenzene	19.5	0.50	ug/L	20		97.5	77-134			
1,1,2-Trichloroethane	19.7	0.30	ug/L	20		98.5	75-115			
1,1,1-Trichloroethane	20.9	0.30	ug/L	20		104	66-158			
Trichloroethylene (TCE)	21.7	0.30	ug/L	20		109	82-128			
Trichlorofluoromethane (R11)	16.4	0.40	ug/L	20		81.8	65-137			
1,2,3-Trichloropropane	18.4	0.20	ug/L	20		91.8	68-123			
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	17.0	0.30	ug/L	20		85.0	62-130			
1,2,4-Trimethylbenzene	21.2	0.30	ug/L	20		106	70-130			
1,3,5-Trimethylbenzene	21.2	0.20	ug/L	20		106	70-130			
Vinyl chloride	18.6	0.40	ug/L	20		92.8	51-151			
o-Xylene	18.9	0.30	ug/L	20		94.4	70-130			
m,p-Xylenes	37.6	0.60	ug/L	40		94.1	70-130			
Surrogate: 4-Bromofluorobenzene	46.4		ug/L	50		92.7	80-129			
Surrogate: Dibromofluoromethane	45.1		ug/L	50		90.3	68-137			
Surrogate: Toluene-d8	42.3		ug/L	50		84.5	83-134			
LCS Dup (B9G2914-BSD1)										
Acetone	22.0	7.7	ug/L	20		110	27-123	3.32	30	J
Benzene	20.7	0.40	ug/L	20		103	60-134	7.99	30	
Bromobenzene	19.6	0.40	ug/L	20		97.9	70-130	0.0511	30	
Bromochloromethane	18.4	0.20	ug/L	20		91.8	78-121	5.05	30	
Bromodichloromethane	21.0	0.40	ug/L	20		105	74-135	2.72	30	
Bromoform	19.6	0.40	ug/L	20		98.0	68-132	14.8	30	
Bromomethane	16.8	0.30	ug/L	20		84.0	58-142	3.34	30	

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Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

LCS Dup (B9G2914-BSD1) Continued

Prepared & Analyzed: 07/29/19

2-Butanone (MEK)	18.0	8.6	ug/L	20	90.0	62-138	1.06	30	J
tert-Butylbenzene	21.0	0.20	ug/L	20	105	70-130	1.04	30	
n-Butylbenzene	21.8	0.20	ug/L	20	109	70-130	1.00	30	
sec-Butylbenzene	21.1	0.20	ug/L	20	105	84-142	1.23	30	
Carbon Disulfide	19.7	0.20	ug/L	20	98.6	17-177	7.66	30	
Carbon Tetrachloride	19.7	0.30	ug/L	20	98.4	66-155	4.42	30	
Chlorobenzene	20.1	0.40	ug/L	20	101	70-130	8.76	30	
Chloroethane	21.4	0.40	ug/L	20	107	45-166	5.58	30	
Chloroform	18.9	0.30	ug/L	20	94.4	71-131	2.67	30	
Chloromethane	17.8	0.40	ug/L	20	88.9	48-152	2.45	30	
4-Chlorotoluene	20.5	0.20	ug/L	20	102	70-130	3.74	30	
2-Chlorotoluene	20.8	0.20	ug/L	20	104	70-130	2.29	30	
1,2-Dibromo-3-chloropropane	20.1	0.40	ug/L	20	101	53-145	3.66	30	
Dibromochloromethane	20.2	0.40	ug/L	20	101	72-133	13.1	30	
1,2-Dibromoethane (EDB)	20.3	0.40	ug/L	20	102	79-120	8.90	30	
Dibromomethane	19.6	0.40	ug/L	20	97.8	68-124	1.65	30	
1,3-Dichlorobenzene	19.7	0.40	ug/L	20	98.7	70-130	0.958	30	
1,4-Dichlorobenzene	19.6	0.30	ug/L	20	98.2	70-130	0.204	30	
1,2-Dichlorobenzene	20.3	0.30	ug/L	20	102	70-130	0.442	30	
Dichlorodifluoromethane (R12)	14.7	0.40	ug/L	20	73.6	16-148	2.42	30	
1,1-Dichloroethane	19.0	0.20	ug/L	20	94.9	67-120	0.211	30	
1,2-Dichloroethane (EDC)	16.7	0.20	ug/L	20	83.3	57-156	4.12	30	
cis-1,2-Dichloroethylene	20.8	0.30	ug/L	20	104	70-124	3.08	30	
1,1-Dichloroethylene	19.9	0.40	ug/L	20	99.6	50-149	2.82	30	
trans-1,2-Dichloroethylene	19.4	0.30	ug/L	20	97.0	66-126	6.72	30	
1,3-Dichloropropane	20.8	0.40	ug/L	20	104	79-113	10.1	30	
1,2-Dichloropropane	22.9	0.30	ug/L	20	114	53-139	6.51	30	
2,2-Dichloropropane	16.2	0.30	ug/L	20	80.8	44-162	15.4	30	
trans-1,3-Dichloropropylene	20.6	0.30	ug/L	20	103	76-121	9.11	30	
1,1-Dichloropropylene	20.7	0.30	ug/L	20	103	84-124	6.92	30	
cis-1,3-Dichloropropylene	21.0	0.40	ug/L	20	105	67-127	7.73	30	
Ethylbenzene	20.8	0.30	ug/L	20	104	86-124	10.3	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit Notes
VOCs by GC/MS - Quality Control									
Batch B9G2914 - EPA 5030B									
LCS Dup (B9G2914-BSD1) Continued									
					Prepared & Analyzed: 07/29/19				
Hexachlorobutadiene	19.1	0.50	ug/L	20	95.6	76-140	4.40	30	
2-Hexanone (MBK)	21.3	8.4	ug/L	20	107	52-123	1.46	30	
Isopropylbenzene	21.0	0.30	ug/L	20	105	70-130	1.70	30	
4-Isopropyltoluene	21.0	0.30	ug/L	20	105	70-130	0.523	30	
Methyl-tert-Butyl Ether (MTBE)	41.3	1.4	ug/L	40	103	58-144	1.80	30	
Methylene Chloride	20.8	4.4	ug/L	20	104	50-135	5.93	30	
4-Methyl-2-pentanone (MIBK)	19.2	9.8	ug/L	20	96.2	49-139	9.55	30	J
Naphthalene	21.2	0.40	ug/L	20	106	74-128	1.14	30	
n-Propylbenzene	21.6	0.20	ug/L	20	108	70-130	2.02	30	
Styrene	21.8	0.20	ug/L	20	109	84-123	10.5	30	
1,1,1,2-Tetrachloroethane	19.3	0.30	ug/L	20	96.4	70-130	9.67	30	
1,1,2,2-Tetrachloroethane	20.7	0.40	ug/L	20	104	58-126	9.77	30	
Tetrachloroethylene (PCE)	18.9	0.50	ug/L	20	94.5	70-130	13.8	30	
Toluene	20.9	0.20	ug/L	20	104	83-118	8.49	30	
1,2,4-Trichlorobenzene	19.7	0.30	ug/L	20	98.4	84-128	2.90	30	
1,2,3-Trichlorobenzene	19.5	0.50	ug/L	20	97.4	77-134	0.154	30	
1,1,2-Trichloroethane	21.5	0.30	ug/L	20	108	75-115	8.88	30	
1,1,1-Trichloroethane	20.0	0.30	ug/L	20	100	66-158	4.21	30	
Trichloroethylene (TCE)	20.7	0.30	ug/L	20	103	82-128	5.09	30	
Trichlorofluoromethane (R11)	19.4	0.40	ug/L	20	96.8	65-137	16.8	30	
1,2,3-Trichloropropane	20.7	0.20	ug/L	20	103	68-123	11.7	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	19.6	0.30	ug/L	20	97.8	62-130	14.1	30	
1,2,4-Trimethylbenzene	21.0	0.30	ug/L	20	105	70-130	1.33	30	
1,3,5-Trimethylbenzene	20.7	0.20	ug/L	20	104	70-130	2.53	30	
Vinyl chloride	19.1	0.40	ug/L	20	95.4	51-151	2.76	30	
o-Xylene	20.8	0.30	ug/L	20	104	70-130	9.49	30	
m,p-Xylenes	41.1	0.60	ug/L	40	103	70-130	8.89	30	
Surrogate: 4-Bromofluorobenzene	45.6		ug/L	50	91.1	80-129			
Surrogate: Dibromofluoromethane	44.0		ug/L	50	87.9	68-137			
Surrogate: Toluene-d8	46.5		ug/L	50	93.0	83-134			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Matrix Spike (B9G2914-MS1)	Source: 9G24009-02 Prepared & Analyzed: 07/29/19								
Acetone	30.0	7.7	ug/L	20	<50	150	11-169		J
Benzene	25.6	0.40	ug/L	20	1.53	120	56-135		
Bromobenzene	18.4	0.40	ug/L	20	<0.50	92.2	70-130		
Bromoform	18.8	0.20	ug/L	20	<0.50	93.8	74-125		
Bromochloromethane	23.6	0.40	ug/L	20	<0.50	118	68-144		
Bromodichloromethane	17.7	0.40	ug/L	20	<0.50	88.5	68-151		
Bromomethane	16.5	0.30	ug/L	20	<0.50	82.4	54-142		
2-Butanone (MEK)	24.2	8.6	ug/L	20	<20	121	62-145		
tert-Butylbenzene	20.7	0.20	ug/L	20	<0.50	104	70-130		
n-Butylbenzene	22.6	0.20	ug/L	20	<0.50	113	70-130		
sec-Butylbenzene	21.2	0.20	ug/L	20	<0.50	106	84-145		
Carbon Disulfide	23.2	0.20	ug/L	20	<0.50	116	28-151		
Carbon Tetrachloride	22.3	0.30	ug/L	20	<0.50	111	58-164		
Chlorobenzene	19.8	0.40	ug/L	20	<0.50	99.0	70-130		
Chloroethane	21.6	0.40	ug/L	20	<0.50	108	42-164		
Chloroform	20.1	0.30	ug/L	20	<0.50	101	65-138		
Chloromethane	19.2	0.40	ug/L	20	<0.50	96.1	50-152		
4-Chlorotoluene	21.2	0.20	ug/L	20	<0.50	106	70-130		
2-Chlorotoluene	21.1	0.20	ug/L	20	<0.50	106	70-130		
1,2-Dibromo-3-chloropropane	21.7	0.40	ug/L	20	<1.0	108	53-161		
Dibromochloromethane	19.1	0.40	ug/L	20	<0.50	95.6	70-130		
1,2-Dibromoethane (EDB)	20.0	0.40	ug/L	20	<0.50	100	76-130		
Dibromomethane	21.4	0.40	ug/L	20	<0.50	107	62-135		
1,3-Dichlorobenzene	19.1	0.40	ug/L	20	<0.50	95.6	70-130		
1,4-Dichlorobenzene	19.5	0.30	ug/L	20	<0.50	97.4	70-130		
1,2-Dichlorobenzene	19.6	0.30	ug/L	20	<0.50	98.0	70-130		
Dichlorodifluoromethane (R12)	16.0	0.40	ug/L	20	<0.50	80.0	17-153		
1,1-Dichloroethane	23.2	0.20	ug/L	20	1.85	107	55-131		
1,2-Dichloroethane (EDC)	21.8	0.20	ug/L	20	1.83	99.9	52-168		
cis-1,2-Dichloroethylene	54.6	0.30	ug/L	20	38.1	82.2	70-130		
1,1-Dichloroethylene	21.1	0.40	ug/L	20	0.870	101	51-140		
trans-1,2-Dichloroethylene	25.6	0.30	ug/L	20	4.97	103	59-127		

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Matrix Spike (B9G2914-MS1) Continued Source: 9G24009-02 Prepared & Analyzed: 07/29/19

1,3-Dichloropropane	21.5	0.40	ug/L	20	<0.50	108	80-121			
1,2-Dichloropropane	27.9	0.30	ug/L	20	<0.50	139	52-142			
2,2-Dichloropropane	19.8	0.30	ug/L	20	<0.50	98.8	36-168			
trans-1,3-Dichloropropylene	20.9	0.30	ug/L	20	<0.50	104	78-130			
1,1-Dichloropropylene	23.6	0.30	ug/L	20	<0.50	118	76-132			
cis-1,3-Dichloropropylene	24.0	0.40	ug/L	20	<0.50	120	66-130			
Ethylbenzene	20.7	0.30	ug/L	20	<0.50	104	86-128			
Hexachlorobutadiene	18.5	0.50	ug/L	20	<1.0	92.4	70-130			
2-Hexanone (MBK)	24.6	8.4	ug/L	20	<20	123	52-141			
Isopropylbenzene	21.0	0.30	ug/L	20	<0.50	105	70-130			
4-Isopropyltoluene	21.1	0.30	ug/L	20	<1.0	105	83-149			
Methyl-tert-Butyl Ether (MTBE)	46.1	1.4	ug/L	40	<2.0	115	56-150			
Methylene Chloride	23.3	4.4	ug/L	20	<5.0	117	70-130			
4-Methyl-2-pentanone (MIBK)	20.2	9.8	ug/L	20	<20	101	60-148			
Naphthalene	19.9	0.40	ug/L	20	<2.0	99.4	70-130			
n-Propylbenzene	22.3	0.20	ug/L	20	<0.50	111	70-130			
Styrene	21.0	0.20	ug/L	20	<0.50	105	65-141			
1,1,1,2-Tetrachloroethane	18.7	0.30	ug/L	20	<0.50	93.4	70-130			
1,1,2,2-Tetrachloroethane	22.1	0.40	ug/L	20	<0.50	110	62-134			
Tetrachloroethylene (PCE)	17.4	0.50	ug/L	20	<0.50	87.2	70-130			
Toluene	20.6	0.20	ug/L	20	<0.50	103	81-123			
1,2,4-Trichlorobenzene	18.4	0.30	ug/L	20	<0.50	92.2	80-137			
1,2,3-Trichlorobenzene	17.8	0.50	ug/L	20	<0.50	89.0	73-144			
1,1,2-Trichloroethane	22.6	0.30	ug/L	20	<0.50	113	76-122			
1,1,1-Trichloroethane	22.1	0.30	ug/L	20	<0.50	110	62-164			
Trichloroethylene (TCE)	24.8	0.30	ug/L	20	1.56	116	72-136			
Trichlorofluoromethane (R11)	18.3	0.40	ug/L	20	<0.50	91.4	59-144			
1,2,3-Trichloropropane	22.0	0.20	ug/L	20	<0.50	110	69-135			
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	19.4	0.30	ug/L	20	<0.50	97.2	62-126			
1,2,4-Trimethylbenzene	20.8	0.30	ug/L	20	<0.50	104	89-134			
1,3,5-Trimethylbenzene	21.0	0.20	ug/L	20	<0.50	105	70-130			

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Matrix Spike (B9G2914-MS1) Continued Source: 9G24009-02 Prepared & Analyzed: 07/29/19

Vinyl chloride	21.2	0.40	ug/L	20	0.750	102	54-150		
o-Xylene	20.2	0.30	ug/L	20	<0.50	101	70-130		
m,p-Xylenes	41.2	0.60	ug/L	40	<1.0	103	70-130		
Surrogate: 4-Bromofluorobenzene	47.8		ug/L	50		95.7	80-129		
Surrogate: Dibromofluoromethane	48.0		ug/L	50		96.1	68-137		
Surrogate: Toluene-d8	48.2		ug/L	50		96.4	83-134		

Matrix Spike Dup (B9G2914-MSD1) Source: 9G24009-02 Prepared & Analyzed: 07/29/19

Acetone	28.7	7.7	ug/L	20	<50	144	11-169	4.22	30	J
Benzene	26.5	0.40	ug/L	20	1.53	125	56-135	3.69	30	
Bromobenzene	19.7	0.40	ug/L	20	<0.50	98.6	70-130	6.66	30	
Bromochloromethane	20.3	0.20	ug/L	20	<0.50	101	74-125	7.68	30	
Bromodichloromethane	25.4	0.40	ug/L	20	<0.50	127	68-144	7.42	30	
Bromoform	19.7	0.40	ug/L	20	<0.50	98.4	68-151	10.5	30	
Bromomethane	17.0	0.30	ug/L	20	<0.50	85.2	54-142	3.34	30	
2-Butanone (MEK)	26.6	8.6	ug/L	20	<20	133	62-145	9.37	30	
tert-Butylbenzene	21.6	0.20	ug/L	20	<0.50	108	70-130	4.07	30	
n-Butylbenzene	23.4	0.20	ug/L	20	<0.50	117	70-130	3.43	30	
sec-Butylbenzene	21.9	0.20	ug/L	20	<0.50	109	84-145	3.39	30	
Carbon Disulfide	24.8	0.20	ug/L	20	<0.50	124	28-151	6.66	30	
Carbon Tetrachloride	22.8	0.30	ug/L	20	<0.50	114	58-164	2.48	30	
Chlorobenzene	20.8	0.40	ug/L	20	<0.50	104	70-130	5.12	30	
Chloroethane	21.4	0.40	ug/L	20	<0.50	107	42-164	1.07	30	
Chloroform	22.0	0.30	ug/L	20	<0.50	110	65-138	8.83	30	
Chloromethane	18.4	0.40	ug/L	20	<0.50	92.2	50-152	4.14	30	
4-Chlorotoluene	22.2	0.20	ug/L	20	<0.50	111	70-130	4.47	30	
2-Chlorotoluene	22.4	0.20	ug/L	20	<0.50	112	70-130	5.71	30	
1,2-Dibromo-3-chloropropane	23.7	0.40	ug/L	20	<1.0	119	53-161	9.12	30	
Dibromochloromethane	20.8	0.40	ug/L	20	<0.50	104	70-130	8.56	30	
1,2-Dibromoethane (EDB)	21.7	0.40	ug/L	20	<0.50	109	76-130	8.29	30	
Dibromomethane	23.6	0.40	ug/L	20	<0.50	118	62-135	9.84	30	
1,3-Dichlorobenzene	20.2	0.40	ug/L	20	<0.50	101	70-130	5.39	30	

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD RPD	Limit Notes
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VOCs by GC/MS - Quality Control

Batch B9G2914 - EPA 5030B

Matrix Spike Dup (B9G2914-MSD1)

Source: 9G24009-02 Prepared & Analyzed: 07/29/19

Continued

1,4-Dichlorobenzene	20.3	0.30	ug/L	20	<0.50	102	70-130	4.22	30
1,2-Dichlorobenzene	20.8	0.30	ug/L	20	<0.50	104	70-130	5.99	30
Dichlorodifluoromethane (R12)	16.0	0.40	ug/L	20	<0.50	80.0	17-153	0.0625	30
1,1-Dichloroethane	24.9	0.20	ug/L	20	1.85	115	55-131	7.36	30
1,2-Dichloroethane (EDC)	22.8	0.20	ug/L	20	1.83	105	52-168	4.35	30
cis-1,2-Dichloroethylene	54.5	0.30	ug/L	20	38.1	81.8	70-130	0.165	30
1,1-Dichloroethylene	23.0	0.40	ug/L	20	0.870	111	51-140	8.89	30
trans-1,2-Dichloroethylene	26.2	0.30	ug/L	20	4.97	106	59-127	2.36	30
1,3-Dichloropropane	23.1	0.40	ug/L	20	<0.50	115	80-121	7.13	30
1,2-Dichloropropane	30.2	0.30	ug/L	20	<0.50	151	52-142	8.05	30
2,2-Dichloropropane	20.2	0.30	ug/L	20	<0.50	101	36-168	2.00	30
trans-1,3-Dichloropropylene	22.5	0.30	ug/L	20	<0.50	113	78-130	7.56	30
1,1-Dichloropropylene	24.6	0.30	ug/L	20	<0.50	123	76-132	4.44	30
cis-1,3-Dichloropropylene	25.3	0.40	ug/L	20	<0.50	126	66-130	5.32	30
Ethylbenzene	22.1	0.30	ug/L	20	<0.50	110	86-128	6.35	30
Hexachlorobutadiene	18.8	0.50	ug/L	20	<1.0	94.2	70-130	1.93	30
2-Hexanone (MBK)	28.1	8.4	ug/L	20	<20	140	52-141	13.0	30
Isopropylbenzene	22.0	0.30	ug/L	20	<0.50	110	70-130	4.88	30
4-Isopropyltoluene	21.7	0.30	ug/L	20	<1.0	109	83-149	3.08	30
Methyl-tert-Butyl Ether (MTBE)	49.8	1.4	ug/L	40	<2.0	124	56-150	7.66	30
Methylene Chloride	24.8	4.4	ug/L	20	<5.0	124	70-130	5.90	30
4-Methyl-2-pentanone (MIBK)	22.6	9.8	ug/L	20	<20	113	60-148	10.9	30
Naphthalene	22.2	0.40	ug/L	20	<2.0	111	70-130	10.8	30
n-Propylbenzene	23.2	0.20	ug/L	20	<0.50	116	70-130	3.92	30
Styrene	22.3	0.20	ug/L	20	<0.50	111	65-141	5.91	30
1,1,1,2-Tetrachloroethane	20.2	0.30	ug/L	20	<0.50	101	70-130	7.97	30
1,1,2,2-Tetrachloroethane	24.4	0.40	ug/L	20	<0.50	122	62-134	9.82	30
Tetrachloroethylene (PCE)	18.0	0.50	ug/L	20	<0.50	90.2	70-130	3.38	30
Toluene	21.8	0.20	ug/L	20	<0.50	109	81-123	5.57	30
1,2,4-Trichlorobenzene	19.7	0.30	ug/L	20	<0.50	98.7	80-137	6.76	30
1,2,3-Trichlorobenzene	19.4	0.50	ug/L	20	<0.50	97.0	73-144	8.65	30

Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Analyte	Reporting Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Notes
VOCs by GC/MS - Quality Control										
Batch B9G2914 - EPA 5030B										
Matrix Spike Dup (B9G2914-MSD1) Source: 9G24009-02 Prepared & Analyzed: 07/29/19										
Continued										
1,1,2-Trichloroethane	24.8	0.30	ug/L	20	<0.50	124	76-122	9.25	30	QM-07
1,1,1-Trichloroethane	23.1	0.30	ug/L	20	<0.50	115	62-164	4.30	30	
Trichloroethylene (TCE)	25.2	0.30	ug/L	20	1.56	118	72-136	1.76	30	
Trichlorofluoromethane (R11)	17.8	0.40	ug/L	20	<0.50	89.2	59-144	2.38	30	
1,2,3-Trichloropropane	23.6	0.20	ug/L	20	<0.50	118	69-135	6.98	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	18.0	0.30	ug/L	20	<0.50	90.0	62-126	7.70	30	
1,2,4-Trimethylbenzene	22.2	0.30	ug/L	20	<0.50	111	89-134	6.18	30	
1,3,5-Trimethylbenzene	21.7	0.20	ug/L	20	<0.50	108	70-130	3.42	30	
Vinyl chloride	21.4	0.40	ug/L	20	0.750	103	54-150	1.13	30	
o-Xylene	21.7	0.30	ug/L	20	<0.50	109	70-130	7.35	30	
m,p-Xylenes	42.8	0.60	ug/L	40	<1.0	107	70-130	3.76	30	
Surrogate: 4-Bromofluorobenzene	47.6		ug/L	50		95.2	80-129			
Surrogate: Dibromofluoromethane	48.4		ug/L	50		96.7	68-137			
Surrogate: Toluene-d8	48.0		ug/L	50		96.0	83-134			


Viorel Vasile
Operations Manager



LABORATORY ANALYSIS RESULTS

Client: Haley & Aldrich (Oakland)
Project No: 130072-024
Project Name: Cooper Drum - South Gate

AA Project No: A874364
Date Received: 07/24/19
Date Reported: 08/06/19

Special Notes

- J** : Detected but below the Method Reporting Limit (MRL) / Limit of Quantitation (LOQ); therefore, result is an estimated concentration (CLP J-Flag).
- [1] = QM-07** : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

Viorel Vasile
Operations Manager



AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311

Tel: 818-998-5547 FAX: 818-998-7258

Client: ~~Haley + Aldrich ; JHA Environmental~~ Project Name / No.: COOPER DROM

Project Manager: CHRIS TAYLOR / MATT HILLMAN Site Address: 9313 RAYO AVE

Phone: 714-371-1820 / 714-392-5970 City: ~~5004 W. LAUREL~~

Fax: 949-483-1047

State & Zip: CA

Sampler's Name: Alex Feuer

70054657

Page 1 of 1

TAT Turnaround Codes **

- | | |
|--|---|
| ① = Same Day Rush
② = 24 Hour Rush
③ = 48 Hour Rush | ④ = 72 Hour Rush
⑤ = 5 Day Rush
X = 10 Working Days (Standard TAT) |
|--|---|

ANALYSIS REQUESTED (Test Name)

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) to American Analytics.